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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/684,488

10/04/2000

Bin Zhang

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3131

7590

05/17/2004

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
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EXAMINER

HAMILTON, MONPLAISIR G

ART UNIT

PAPER NUMBER

2135

DATE MAILED: 05/17/2004

49

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/684,488

Applicant(s)

ZHANG ET AL.

Examiner

Monplaisir G Hamilton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-24 and 26-30 is/are rejected.
- 7) ☒ Claim(s) 25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/2/04

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The communication filed on 1/28/04, amended Claims 21-29. Claims 21-30 remain for examination.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 3/1/04 was filed after the mailing date of the Non-Final Office Action on 1/28/04. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 112

3. Claims 21-27 and 29-30 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted element is: the predetermined metric. Applicant's specification alludes to the use of a predetermined metric (page 14, lines 15-20). Claim 28 explicitly defines the metric as being related to a geometric center. This limitation is a required feature of for the claimed clustering process. Appropriate correction is required.

Response to Arguments

4. Applicant's arguments filed 13/1/04 have been fully considered but they are not persuasive.

Applicant has essentially argues that the prior art does not disclose "receiving into the computer a size parameter for specifying the number of data points to be moved at one time; clustering the data points by using the size parameter".

Examiner disagrees with applicant. The de-clustering algorithm disclosed by IBM Technical Disclosure, Techniques for Improving Multi-partioning Algorithm, states that the de-clustering steps are introduced to move smaller clusters/subsets to different clusters (page 4, lines 15-22; page 5, lines 1-10). Furthermore the claimed size parameter is equivalent to the disclosed $\text{max_size}/d$. This represents the number of data points in a cluster that will be evaluated for a move to create new memberships for the partitions (page 3, lines 1-10). Examiner maintains that IBM anticipates the claimed "size parameter for specifying the number of data points to be moved at one time; clustering the data points by using the size parameter".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 21-22, 27 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by NN9301473, IBM Technical Disclosure Bulletin, herein referred to as IBM (1/ 1/1993).

Referring to Claim 21:

IBM discloses a system for clustering data comprising: a computer executing a computer program performing at the following steps:

(a) receiving into the computer a plurality of data points for clustering (page 1, lines 5-10);

(b) receiving into the computer a size parameter for specifying the number of data points to be moved at one time (page 4, lines 10-30);

(c) clustering the data points by using the size parameter to generate clustered results (page 4, lines 22-30);

(d) determining whether the clustered results are satisfactory (page, lines 15-20);

(e) when the clustered results are satisfactory, stop clustering (page 4, lines 30-33);

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(f) otherwise when the clustered results are not satisfactory, revise the size parameter, perform clustering based on the revised size parameter and the clustered results, and proceed to step (d) (page 4, lines 25-30).

Referring to Claim 22:

IBM discloses the limitations as discussed in Claim 21 above. IBM further discloses wherein step (c) of the computer program further comprises:

(c1) evaluating subsets of data points in each cluster for moving into every other cluster by using a predetermined metric; wherein the number of data points in the subset is specified by the size parameter (page 6, lines 1-10).

Referring to Claim 27:

IBM discloses the limitations as discussed in Claim 21 above. IBM further discloses revising the size parameter of step (f) further comprises (f₁) decreasing the size parameter (page 4, lines 25-30).

Referring to Claim 30:

IBM discloses the limitations as discussed in Claim 21 above. IBM further discloses wherein the system is utilized in one of a data mining application, customer segmentation application, document categorization application, scientific data analysis application, data compression application, vector quantization application, and image processing application (page 1, lines 1-5).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 23-24, 26 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over NN9301473, IBM Technical Disclosure Bulletin, herein referred to as IBM (1/1/1993) in view of US 6092072 issued to Guha, herein referred to as Guha.

Referring to Claim 23:

IBM discloses the limitation as discussed in Claim 22 above.

IBM does not explicitly disclose "(c1_1) determining a geometric center of the subset of data points being evaluated for a move; (c1_2) using the geometric center of the subset of data points in the predetermined metric to generate a value."

Guha discloses (c1_1) determining a geometric center of the subset of data points being evaluated for a move (col 6, lines 50-65; col 7, lines 20-25); (c1_2) using the geometric center of the subset of data points in the predetermined metric to generate a value (col 9, lines 30-55).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of IBM such that it determined a geometric mean as a criteria for the clustering algorithm. One of ordinary skill in the art would have been motivated to do this because it would decrease the number of data points that would be evaluated (Guha:

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col 9, lines 35-60). IBM expressly states that other clustering algorithms may be used (IBM: page 3, lines 5-10).

Referring to Claim 24:

IBM in view of Guha discloses the limitations as discussed in Claim 23 above. Guha further discloses

(cl_3) determining whether the value is greater than zero (col 9, lines 50-55);

(cl_4) when the value is greater than zero, moving the subset of data points from a Move_From cluster to a Move_To cluster (col 9, lines 55-65);

(cl_5) when the value is not greater than zero, determining if there are more subsets to evaluate (col 10, lines 23-26);

(cl_6) when there are more subsets to evaluate, proceeding to step (c1) (col 9, lines 55-65);

(cl_7) when there are no more subsets to evaluate, determining whether any point has moved (col 10, lines 15-30);

(cl_8) when a point has moved, proceeding to step (c1) (col 9, lines 55-65); and

(cl_9) when no point has moved, stopping the processing (col 9, lines 25-35).

Referring to Claim 26:

IBM in view of Guha discloses the limitations as discussed in Claim 24. Guha further discloses updating the count of the Move_From cluster (col 9, lines 60-65; col 10, lines 23-26); updating the center of the Move_From cluster (col 9, lines 35-45; col 10, lines 35-50); updating

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the count of the Move_To cluster (col 10, lines 14-20; updating the center of the Move_To cluster (col 9, lines 35-46).

Referring to Claim 28:

IBM discloses the limitation as discussed in Claim 21 above.

IBM does not explicitly disclose “(d_1) employing a predetermined metric for determining whether the clustered results are satisfactory; wherein the predetermined metric includes a geometric center of the subset of points that are being evaluated for move.”

Guha discloses (d_1) employing a predetermined metric for determining whether the clustered results are satisfactory, wherein the predetermined metric includes a geometric center of the subset of points that are being evaluated for move (col 9, line 30-col 10, line 50).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of IBM such that it determined a geometric mean as a criteria for the clustering algorithm. One of ordinary skill in the art would have been motivated to do this because it would decrease the number of data points that would be evaluated (Guha: col 9, lines 35-60). IBM expressly states that other clustering algorithms may be used (IBM: page 3, lines 5-10).

Referring to Claim 29:

IBM in view of Guha discloses the limitations as disclosed in Claim 28 above. Guha further discloses the predetermined metric of step (d_1) of the computer program comprises the following expression:

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where U is the subset of data points being evaluated for the move, $|U|$ is the size of U that is specified by the size parameter, m_{∞} is the geometric center of U , M_i and m_j are the centers of the clusters and n_i and n_j are the counts of the clusters (col 12, lines 40-65).

Allowable Subject Matter

7. Claim 25 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Final Rejection

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Prior Art

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6437804 issued to Ibe, Oliver et al. Ibe discloses According to an embodiment of the present invention, a method is provided for partitioning a network, comprising modeling the network as a graph comprising nodes which represent network devices, and edges which represent links between the devices, and automatically partitioning the graph into domains. One embodiment of the method includes identifying a number of anchor nodes in the graph and partitioning the domains around the anchor nodes such that each domain contains only one anchor node. Another embodiment of the method includes partitioning a graph without anchor nodes into a number of domains, and assigning controllers to each of the domains. Preferably, the method further includes assigning a weight to each node in the graph, and balancing the partitions as a function of the weight of each node in a respective partition.

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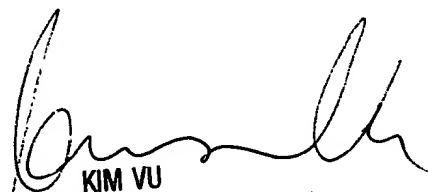
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monplaisir G Hamilton whose telephone number is (703) 305-5116. The examiner can normally be reached on Monday - Friday (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y Vu can be reached on (703) 305-4393. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monplaisir Hamilton


KIM VU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2135